
2H

Information

General Session

Public Study Session on the Implications of Modifying the CSET: Single Subject Examinations (CSET: SS) to Assess Basic Skills in Reading, Writing, and Mathematics

Executive Summary: This agenda item fulfills the requirement specified in SB 1209 (Chap. 517, Stats. 2006) that the Commission hold a public study session to consider the implications of modifying the CSET: Single Subject examinations to assess basic skills in reading, writing, and mathematics.

Recommended Action: This is an information item only.

Presenter: Dr. Phyllis Jacobson, Administrator,
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Strategic Plan Goal: 1

Promote educational excellence through the preparation and certification of professional educators.

- ◆ Sustain high quality standards for the preparation of professional educators.
- ◆ Sustain high quality standards for the performance of credential candidates.

June 2007

Public Study Session on the Implications of Modifying the CSET: Single Subject Examinations (CSET: SS) to Assess Basic Skills in Reading, Writing, and Mathematics

Introduction

Senate Bill 1209 (Chap. 517, Stats. 2006) requires that the Commission “shall convene a public study session to consider the implications of modifying the single subject California Subject Examinations for Teacher (CSET) to assess basic skills in reading, writing, and mathematics...at least as comprehensively and to the level that these skills are assessed by the state basic skills proficiency test... The Commission, no later than October 1, 2007, shall report to the legislature on the outcome of that session...”

A primary rationale for holding a study session of this nature is to consider the potential for reducing the number of the examinations required for teacher credentialing, if there is overlap or redundancy in what is measured across these examinations. In this regard, SB 1209 requires that three issues in particular be looked at in relation to modifying these assessments: the implications, costs, and validity of modifying this set of assessments.

This agenda item addresses the Commission’s requirement to hold a public study session to consider these topics. The information provided in this agenda item is intended to serve as a background and as a context for the public comments and the discussions facilitated through this public study session.

Background

The CSET: Single Subject Examinations

Education Code sections 44280 and 44281 state that the “adequacy of subject matter preparation and the basis for assignment of certified personnel shall be determined by the successful passage of a subject matter examination as certified by the commission...” and that “the commission shall select, administer, and interpret subject matter examinations, which shall be a prerequisite for assignment to assure minimum levels of subject matter knowledge by all certified personnel regardless of the pattern and place of preparation.” The CSET: Single Subject examinations were developed in response to the requirements of the Education Code specifically to measure the candidates’ **subject matter knowledge** across a wide range of single subject content areas.

As part of the development process, the CSET: SS examinations were aligned with the K-12 student academic content standards and frameworks, and a job analysis was performed

to ensure that the examination specifications reflected the subject matter knowledge needed by a beginning teacher.

There are currently 31 individual CSET: Single Subject examinations, as listed below:

- Agriculture
- Art
- Business
- English
- Foundational-Level Mathematics (Algebra, Number Theory, Geometry, Probability and Statistics)
- Health Science
- Home Economics
- Industrial and Technology Education
- Languages Other Than English (each language has its own individual CSET examination):
 - American Sign Language
 - Arabic
 - Armenian
 - Cantonese
 - Farsi
 - Filipino
 - French
 - German
 - Hmong
 - Japanese
 - Khmer
 - Korean
 - Mandarin
 - Punjabi
 - Russian
 - Spanish
 - Vietnamese
- Mathematics (through Calculus)
- Music
- Physical Education
- Science: Biology/Life Science, Chemistry, Physics, and Geosciences
- Science (Specialized): Biology/Life Science, Chemistry, Physics and Geosciences)
- Social Science

The following table shows the number of subtests, and the range of content, covered by each of these subject matter examinations:

CSET Exam	Subtest I	Subtest II	Subtest III	Subtest IV
Agriculture	Plant and Soil Science; Ornamental Horticulture	Animal Science; Environmental Science and Natural Resource Management	Agricultural Business and Economics; Agricultural Systems Technology	
Art	Artistic Perception; Historical and Cultural Context of Visual Arts; Aesthetic Valuing	Creative Expression; Connections, Relationships and Applications; History and		

CSET Exam	Subtest I	Subtest II	Subtest III	Subtest IV
		Theories of Learning in Art		
Business	Business Management; Marketing	Accounting and Finance; Economics	Information Technology; Business Environment and Communication	
English	Literature and Textual Analysis; Composition and Rhetoric	Language, Linguistics and Literacy	Composition and Rhetoric; Literature and Textual Analysis	Communications: Speech, Media and Creative Performance
Foundational-Level Mathematics	Algebra; Number Theory	Geometry; Probability and Statistics		
Health Science	Foundations of Health Education; Human Growth and Development; Chronic and Communicable Diseases	Nutrition and Fitness; Mental and Emotional Health; Alcohol, Tobacco and Other Drugs	Family Life and Interpersonal Relationships; Consumer and Community Health; Environmental Health	
Home Economics	Personal, Family and Child Development	Nutrition, Foods and Hospitality	Fashion and Textiles, Housing and Interior Design; Consumer Education	
Industrial and Technology Education	Nature of Technology	Power and Energy; Information and Communication; Project and Product Development		
Languages Other Than English: ASL	Literary and Cultural Texts and Traditions; Cultural Analysis and Comparisons	General Linguistics; Linguistics of American Sign Language (Language Structure, Contrastive Analysis)	Linguistics of American Sign Language (Error Analysis); Receptive Comprehension; Expressive Production	
Languages Other Than English (Cantonese, German, Japanese, Korean, Mandarin, Punjabi, Russian and Vietnamese)	General Linguistics; Linguistics of the Target Language	Literary and Cultural Texts and Traditions; Cultural Analysis and Comparisons	Language and Communication: Target Language Listening, Speaking, Reading, and Writing	
Languages Other Than English (Arabic, Armenian, Farsi, Filipino, Hmong and Khmer)	General Linguistics; Linguistics of the Target Language; Literary and Cultural Texts and Traditions; Cultural Analysis and Comparisons	Language and Communication: Target Language Listening, Speaking, Reading and Writing		

CSET Exam	Subtest I	Subtest II	Subtest III	Subtest IV
Mathematics (Foundational – Subtests I and II; Advanced – Subtest III)	Algebra; Number Theory	Geometry; Probability and Statistics	Calculus; History of Mathematics	
Music	Artistic Perception; Historical and Cultural Foundations; Aesthetic Valuing	Creative Expression; Connections: Relationships and Applications	Music Methodology and Repertoire	
Physical Education	Growth, Motor Development and Motor Learning; Science of Human Movement	Sociology and Psychology of Human Movement; Movement Concepts and Forms; Assessment and Evaluation Principles	Professional Foundations; Integration of Concepts	
Science (General – Subtests I and II; Specialized – Subtests III and IV)	General Science: Astronomy, Earth Processes, Earth Resources, Waves, Forces and Motion, Electricity and Magnetism	General Science: Ecology; Genetics and Evolution, Molecular Biology and Biochemistry, Cell and Organismal Biology, Heat Transfer and Thermodynamics, Structure and Properties of Matter	One of the following: Biology/Life Science Chemistry Earth and Planetary Science Physics	One of the following: Biology/Life Science Chemistry Earth and Planetary Science Physics
Social Science	World History; World Geography	U.S. History; U.S. Geography	Civics; Economics; California History	

The CSET: Single Subject examinations are designed to be administered in a single testing session of five hours in length. However, candidates have the option to either take all of the subtests of a particular CSET: Single Subject examination in a single testing session or to take only one or two subtests in a single testing session. Regardless of the number of subtests for which a candidate registers, the length of the testing session is a maximum of five hours. CSET: Single Subject examinations are primarily administered in the afternoon testing session, as the CSET: Multiple Subjects examination is administered during the morning session at the same testing locations. This arrangement maximizes the efficiency of the use of test sites and testing personnel, and results in lower overall costs to examinees.

To pass a CSET: Single Subject examination, candidates must earn a passing score on each of the examination's required subtests. Each CSET subtest is scored separately. For each CSET subtest, an individual's performance is evaluated against a CTC-adopted passing score standard. Passing status is determined on the basis of total subtest performance. The total subtest score is based on the number of raw score points earned on each section (multiple-choice section and/or constructed response section), the

weighting of each section, and the scaling of that score. Candidates' raw scores are converted to a scale of 100-300, with the scaled score of 220 representing the minimum passing score standard adopted by the Commission. Each subtest is scored and reported independently of the other subtests for a given single subject area. Candidate scores remain valid for a period of five years from the test date on which the scores were achieved and must be used for California certification within that time frame.

The CSET: Single Subject examinations are administered up to six times per year, every other month (September, November, January, March, May and July), as illustrated in the following schedule for the 2007-2008 testing year:

	Sept 2007	Nov 2007	Jan 2008	Mar 2008	May 2008	Jul 2008
English Math Science Social Science	✓	✓	✓	✓	✓	✓
Agriculture Art Business French Health Science Home Economics Industrial Tech Education Music Physical Education Spanish	✓		✓	✓	✓	
American Sign Language Arabic Armenian Cantonese Farsi Filipino German Hmong Japanese Khmer Korean Mandarin Punjabi Russian Vietnamese		✓			✓	

The State Basic Skills Proficiency Test (i.e., CBEST)

The California Education Code Section 44252 specifies that candidates must demonstrate proficiency in basic reading, writing, and mathematics skills, in English, by passing the state's basic skills examination. Until the passage of SB 1209, the CBEST has been the only basic skills examination specified for meeting the basic skills requirement. The CBEST is not a test of specialized subject matter knowledge, but of basic skills in these three specified areas. The basic skills requirements became effective on February 1, 1983. Since that time, passage of the CBEST has been the only method by which to meet this requirement until the passage of SB 1209 in 2006, which provided additional options to meet the basic skill requirement.

The CBEST is designed to test basic reading, writing, and mathematics skills found through an extensive job analysis to be important for the job of an educator. The test consists of three sections: reading, writing, and mathematics. The questions in the reading section assess a candidate's ability to comprehend information presented in written passages, tables, and graphs. There are 50 multiple-choice questions from two major skill areas: critical analysis and evaluation, and comprehension and research skills. The mathematics section consists of 50 multiple-choice questions from three major skill areas: estimation, measurement, and statistical principles; computation and problem solving; and numerical and graphic relationships. The writing section includes two writing topics that assess an examinee's ability to write effectively in English. One topic asks candidates to analyze a given situation or statement and the other asks them to write about a specified personal experience. Examinees must respond to both topics. Specialized content knowledge is not required in the reading and writing sections.

The CBEST is designed to be administered in a test session of a maximum of four hours. Candidates may take one, two, or all three CBEST sections during a test session. The CBEST passing requirements are based on a compensatory scoring model. The scaled scores used for reporting CBEST results range from 20 to 80 for each of the three sections. The passing score on each CBEST section is a scaled score of 41. A total score (i.e., the sum of the Reading, Mathematics, and Writing scaled scores) of 123 is required for passing status. It is possible to pass the CBEST with a scaled score on one or two sections as low as 37, provided that the total score is 123 or higher. It is not possible, however, to pass the CBEST if any section score is below 37, regardless of how high the total score may be. Once the test has been passed, the scores remain permanently valid.

The CBEST is offered six times per year, on the opposite months from the CSET examinations (August, October, December, February, April and June). The content specifications for the CBEST are provided as Attachment A to this agenda item.

Summary Comparison between the CSET: Single Subject Examinations and the State Basic Skills Assessment (i.e., the CBEST).

The following chart summarizes the major comparison points between the CSET: Single Subject and the CBEST examinations. (Note: pursuant to SB 1209, candidates will have other basic skills options besides the CBEST. This chart refers only to the CBEST.)

Summary Comparison Between the CSET: Single Subject and the State Basic Skills (i.e., CBEST) Examinations*

	CSET: Single Subject	Basic Skills (CBEST)
Mandatory for Which California-Trained Candidates	Not Mandatory. Voluntary for single subject credential candidates (candidates may meet subject matter requirements through an approved subject matter preparation program rather than the CSET: SS exam)	Mandatory for: Initial teaching and service credentials
Format	Ranges by subject area from two subtests to four subtests	Three sections (Reading, Writing, Mathematics)
Main Applicable Education Codes	§44280 and §44281	§44252 and SB 1209 (Chap. 517, Stats. 2006)
Score Model	Not compensatory. Candidates must achieve the minimum passing score on each individual subtest.	Compensatory (i.e., higher scores on one section can compensate for lower scores on another section, within a mandatory minimum score limit).
Purpose and Content Covered	Verifies candidates' knowledge of specialized subject matter content across thirty-one different subject areas, in alignment with state frameworks and K-12 student academic content standards.	Verifies candidates' basic skills in the three general knowledge areas of Reading, Writing and Mathematics (all in English).
Type of Assessment	Includes multiple choice items and constructed responses, depending on subtest.	Includes multiple choice items and constructed responses, depending on test area (Reading, Writing, or Mathematics).
Language of Candidate Responses	In English for all examinations except for ASL and all other Languages Other Than English. In these CSET examinations there are questions and responses in the target language, not in English.	All in English.

	CSET: Single Subject	Basic Skills (CBEST)
Content Focus	CSET: Single Subject focuses on in-depth specialized subject matter knowledge. Written responses are scored based on content knowledge and are not scored for mechanics and conventions of writing.	CBEST focuses on generalized knowledge of Reading, Mathematics and Writing. Writing is scored primarily on rhetorical characteristics (organization, support and development, rhetorical force) and conventions of writing (usage, structure, conventions, appropriateness) and not on the candidate's content knowledge.

* For more detailed information visit the CCTC web site at <http://www.ctc.ca.gov>.

Potential Approaches to Modifying the CSET: Single Subject Examinations to Assess Basic Skills in Reading, Writing, and Mathematics, and Implications of These Approaches

Introduction

One of the potential ways of streamlining credentialing requirements for candidates could be to consolidate some of those requirements where feasible. Since candidates have to pass several examinations as part of the requirements for a California credential, this is potentially an area where consolidation might be able to be accomplished. It is understandable that to the general public, it would seem a relatively simple matter to combine two examinations such as the CSET: Single Subjects and the CBEST. However, the area of teacher examinations is highly complex, and entails unique issues of examination validity and reliability, as well as legal defensibility, that must be addressed in order for these examinations to meet statutory requirements for content validity, scoring reliability, and other psychometric properties. The processes of examination development and validation are not readily visible to the public because of the need for maintaining test security. These factors make explaining the implications of combining two different assessments more complicated.

To help make examination processes more transparent, the steps that go into examination development and validation are briefly outlined in Attachment B to this agenda item. These steps align with accepted industry and professional standards in the field of testing and evaluation, and form the basis for the validity, reliability, and legal defensibility of state examinations in making decisions about candidates.

Focus of the Study Session

This study session focuses on two types of examinations in particular that are taken by single subject candidates: the CBEST and the 31 different CSET: Single Subject examinations. The CBEST is used by single subject candidates to establish basic skills competence; the CSET: SS is used to establish subject matter competence. It is important to note, however, that while all Single Subject candidates need to pass a basic skills assessment, not all Single Subject candidates have to take a CSET: Single Subject examination. Single Subject candidates may complete a Commission-approved subject

matter program in lieu of a CSET: SS examination. Approximately 44% of Single Subject candidates currently choose the subject matter program route to establishing their subject matter competence and 56% choose the CSET: Single Subject examinations route.

This study session is charged with considering implications of modifying the CSET: SS to assess basic skills in reading, writing, and mathematics. A starting point might be to ask **whether the CSET:SS examinations might already assess at least some of the basic skills** by virtue of the fact that, for example, candidates must be able to read in English in order to complete a given CSET: SS examination. In the case of basic skills in reading, for example, it is true that except for certain sections of the Languages Other Than English examinations, candidates are reading and responding to questions using English. A potential policy approach, therefore, might be to deem that candidates who pass the CSET: SS English examination would also have met the basic skills requirement in reading and in writing. An extension of this potential policy approach could be to deem that candidates who pass the CSET: SS Mathematics examination would also have met the basic skills requirement in math. A third possible extension of this potential policy approach could be to deem that candidates who pass any of the CSET: SS examinations would also have met the basic skills requirement in reading. This policy approach could be considered similar to the policy established pursuant to SB 1209 which stipulated that multiple subject candidates who pass all sections of the CSET: Multiple Subjects examination plus pass an additional CSET: Writing Skills test would also have met the basic skills requirement.

There are three major implications of this potential policy approach, however, as it applies to single subject candidates that would need further consideration. The first of these implications is that the content of the questions on the CSET and the CBEST examinations differ in key ways. The questions to which the candidates are responding on the CSET: SS examinations ask about the candidates' specialized subject matter knowledge relating to the K-12 student academic content standards, whereas the questions on the CBEST examination ask about the candidates' basic general knowledge of reading, mathematics, and writing processes as these relate to the job requirements of being a teacher. As substantiated in the section on the process of examinations development provided in Attachment B, all examination questions must track back to specific approved content specifications in order to maintain the validity of the examination. The CSET: SS English examination, for example, does not ask about content such as "making predictions about the outcome of an event based on information from a reading selection," "challenge the statements and opinions presented in a reading selection," and "arrange the ideas in a reading selection into an outline or another form of graphic organization," to illustrate a few of the CBEST content specifications not covered by the CSET: English examination.

Given that there are differences in the content assessed by the CSET:SS in comparison to the content assessed by the CBEST, the second major implication of this potential policy approach could be that using the CSET:SS examinations for basic skills purposes might not meet the statutory requirement contained within SB 1209 that the examination "assess

basic skills in reading, writing, and mathematics....at least as comprehensively and to the level that these skills are assessed by the state basic skills proficiency test.”

A third major implication of this approach would be that there would be no cost reduction to candidates since the candidates would still need to pass a basic skills assessment in the area(s) not covered by the particular CSET: SS. For example, a mathematics candidate would still need to meet the basic skills requirement in writing, an English candidate would still need to meet the basic skills requirement in mathematics, and all other single subject candidates would still need to meet the basic skills requirement in mathematics and writing in English.

Another question, then, that might be posed is **whether a different approach could be taken whereby the CSET:SS examinations could be modified to include questions that specifically address the basic skills content specifications.** Within this approach, the original subject-matter content of the current examination could be modified (i.e., reduced) in favor of adding new content questions based on the content specifications adopted by the Commission relating to basic skills, as outlined in Attachment A of this agenda item. This approach has several implications. First, while this approach might appear on the surface to be practical, in actuality it would entail some complex and costly examination revalidation and possibly redevelopment work, since changing the questions within an existing examination that has already been validated for content coverage, bias considerations, difficulty level, and weighting of the various subsections would require a revalidation of the modified examination and the establishment of new passing scores for each of the two to four subtests in each of the 31 test fields. Second, if a revalidation process were to result in a determination that the modified examination were no longer valid for the intended purpose (i.e., in the case of the CSET, for determining subject matter competence and/or basic skills competence) that situation would be problematic to resolve.

A third implication to consider within this approach is that the content coverage of what was previously in the CSET: SS examinations would need to be reduced in order to add questions covering the new content in basic skills while still maintaining the current format and timeframe for administration of the examination. This situation might result in a potential issue with meeting the intent of the law that requires the basic skills assessment to be at least as comprehensive and to the level that these skills are assessed by the state basic skills proficiency test, since the basic skills content coverage would be significantly reduced by this approach to modifying the CSET: SS examinations.

A fourth implication to consider in this approach is that there might be a need to maintain two separate versions of the CSET: SS examinations, one that was modified to include basic skills content, and another that was not modified. This duplication might be necessary in order to meet the needs of candidates who did not need to meet the basic skills requirement via the CSET: SS examinations, such as (a) single subject candidates who chose the program route rather than the exams route to establishing subject matter competence; (b) out of state candidates who already met the basic skills requirement in another state; and (c) candidates for other teaching and service credentials. Having to

maintain and score two different versions of the same examination could have a high potential for being confusing for candidates, complex for administration and scoring purposes, and difficult to track in candidate records.

If the approaches discussed thus far might not be sufficiently practicable, **what about the approach of adding one or more additional subtests to the CSET: SS examinations?**

This approach would provide basic skills content coverage of the new material while still maintaining the validity of the current examination(s), but would also add significantly to the testing time and study requirements for candidates without reducing costs. An implication of this approach would be that it would also not represent an actual “modification” of the existing CSET: SS examination, but rather an addition to the existing examination. A second implication of this approach would be that the testing day could become very long for candidates, as the CSET examination and the CBEST examination allow four to five hours each for the testing session.

Some additional considerations pertinent to all of the approaches outlined above are that:

- Whether or not the CSET: Single Subject series of examinations were modified to assess basic skills under any of the potential approaches, the CBEST examination would still need to continue to be available separately and to be administered separately from the CSET: Single Subject examinations in order to meet the needs of (a) single subject candidates who complete an approved program rather than the examination; (b) out of state candidates; and (c) candidates for other teaching and service credentials.
- There would not be a cost savings to the Commission or to these candidates for this reason if the CSET: SS examinations were to be modified under any of the approaches in order to assess basic skills in reading, writing and mathematics, and several of the approaches discussed that involve examination modification and/or revalidation and additional development, could result in higher costs.

The following chart summarizes these and other considerations relevant to the various approaches described above.

	Deem the CSET:SS in English and/or Math and/or all subjects to assess some of the basic skills	Modify CSET:SS questions to add basic skills content	Add subtest(s) to CSET:SS examinations
Comprehensiveness and level of basic skills assessment	<ul style="list-style-type: none"> reduced level of content coverage for basic skills 	<ul style="list-style-type: none"> reduced level of content coverage for basic skills 	<ul style="list-style-type: none"> no reduction in level of content coverage for basic skills
Comprehensiveness and level of subject matter assessment: CSET	<ul style="list-style-type: none"> no reduction in subject matter content assessment 	<ul style="list-style-type: none"> reduced level of subject matter content assessment 	<ul style="list-style-type: none"> no reduction in subject matter content assessment
Candidate Concerns	<ul style="list-style-type: none"> differential treatment of candidates (some candidates allowed to meet some basic skills via CSET, others not) 	<ul style="list-style-type: none"> candidates need to study both subject matter and basic skills content simultaneously and to draw on both sets of knowledge and skills within a single examination may be unfair to candidates in Languages Other Than English, since these candidates would need to switch into English for purposes of answering basic skills questions while they were taking an examination using another language than English for their responses. 	<ul style="list-style-type: none"> candidates need to study both subject matter and basic skills content simultaneously

	Deem the CSET:SS in English and/or Math and/or all subjects to assess some of the basic skills	Modify CSET:SS questions to add basic skills content	Add subtest(s) to CSET:SS examinations
Validity Concerns	<ul style="list-style-type: none"> • potentially not valid for basic skills assessment purposes • may not meet statutory requirements for equal level of coverage of basic skills as in the CBEST 	<ul style="list-style-type: none"> • potentially not valid for basic skills and/or for subject matter competence assessment purposes • may not meet statutory requirements for equal level of coverage of basic skills as in the CBEST 	<ul style="list-style-type: none"> • validity not affected
Cost Issues	<ul style="list-style-type: none"> • no cost reduction to candidates 	<ul style="list-style-type: none"> • costly redevelopment and revalidation might be required • costs to candidates might increase to offset costs involved in administering and scoring two versions of the same examination (one version modified for single subject candidates who need to meet basic skills competence, the other not modified for other types of candidates) 	<ul style="list-style-type: none"> • costs not affected

	Deem the CSET:SS in English and/or Math and/or all subjects to assess some of the basic skills	Modify CSET:SS questions to add basic skills content	Add subtest(s) to CSET:SS examinations
Other Issues	<ul style="list-style-type: none"> • Need to address basic skills competence assessment in the areas not covered by the respective CSET: SS examinations • Complex explanations and directions for exam registration and scoring may be confusing to candidates and to credential analysts, and examination results may be complex also for record keeping and reporting purposes 	<ul style="list-style-type: none"> • If a candidate did not pass the particular CSET:SS examination, prescriptive feedback would be difficult to provide as it would not be clear if the candidate did not pass the subject matter content or the basic skills content, or both • Complex explanations and directions for exam registration and scoring may be confusing to candidates and to credential analysts, and result may be complex also for record keeping and reporting purposes 	<ul style="list-style-type: none"> • no modifications to the current CSET:SS would be made

ATTACHMENT A

CALIFORNIA BASIC EDUCATIONAL SKILLS TEST™ (CBEST®)

TEST SPECIFICATIONS

TEST SPECIFICATIONS: READING

Skill Factor 1: Critical Analysis and Evaluation

Skill Factor 2: Comprehension and Research

CRITICAL ANALYSIS AND EVALUATION

- Compare/contrast ideas or information presented in different sections of a reading selection* or from different sources.
- Identify the reasons, examples, details, or facts in a reading selection that support the author's main idea.
- Make predictions about the outcome of an event based on information from a reading selection.
- Recognize the attitude, opinion, or viewpoint expressed by the author toward his or her subject.
- Determine whether facts or ideas are relevant to an argument in a reading selection.
- Recognize statements that strengthen or weaken arguments in a reading selection.
- Recognize the various persuasive techniques used by an author in a reading selection.
- Distinguish between facts and opinions in a reading selection.
- Identify logical assumptions upon which the author bases the argument of a reading selection.
- Challenge the statements and opinions presented in a reading selection.
- Identify inconsistencies or differences in points of view within one reading selection or between two or more selections.
- Recognize the audience that a reading selection addresses.
- Recognize language that creates an inappropriate or inconsistent tone, given the intended audience and purpose.

*Throughout these specifications, "reading selection" is defined as an excerpt from a book, chapter, paragraph, article, or report.

COMPREHENSION AND RESEARCH SKILLS

A. Comprehension and Context

- Identify the relationships between general and specific ideas in a reading selection.
- Determine the sequence of events or steps in a process from a reading selection.
- Arrange the ideas in a reading selection into an outline or another form of graphic organization.
- Recognize the main idea or purpose of a reading selection.
- Identify accurate paraphrases or summaries of ideas in a reading selection.
- Identify facts and details presented in a reading selection.
- Draw conclusions or generalizations from material presented in a reading selection.
- Make inferences and recognize implications based on information from a reading

selection.

- Recognize implied relationships between people, ideas, or events in a reading selection.
- Use context clues, syntax, and structural analysis (e.g., affixes, prefixes, roots) to determine the meaning of unknown words.
- Determine the meanings of figurative or colloquial language in a reading selection.
- Recognize and identify different interpretations that can be made of the same word, sentence, paragraph, or reading selection.
- Recognize how the meaning of a word, sentence, or paragraph is affected by the context in which it appears.
- Understand the function of key transition indicators in a reading selection (e.g., "however," "by contrast," "in conclusion").

B. Research and Reference Skills

- Use the table of contents, section headings, index, and similar sections of a book to locate information.
- Locate the place in a reading selection (e.g., book, chapter, paragraph, article, or report) where a specific kind of information can be found.
- Understand how a reading selection is organized.
- Identify logical conclusions, generalizations, or implied relationships that are supported by information in a table or graph.

TEST SPECIFICATIONS: MATHEMATICS

Skill Factor 1: Estimation, Measurement, & Statistical Principles

Skill Factor 2: Computation & Problem Solving

Skill Factor 3: Numerical & Graphic Relationships

ESTIMATION, MEASUREMENT, & STATISTICAL PRINCIPLES

A. Estimation and Measurement

- Understand and use standard units of length, temperature, weight, and capacity in the U.S. measurement system.
- Measure length and perimeter.
- Understand and use estimates of time to plan and achieve work-related objectives.
- Estimate the results of problems involving addition, subtraction, multiplication, and division prior to computation.

B. Statistical Principles

- Perform arithmetic operations with basic statistical data related to test scores (e.g., averages, ratios, proportions, and percentile scores).
- Understand basic principles of probability and predict likely outcomes based on data provided (e.g., estimate the likelihood that an event will occur).
- Interpret the meaning of standardized test scores (e.g., stanine scores, percentiles) to determine how individuals performed relative to other students.

COMPUTATION & PROBLEM SOLVING

- Add, subtract, multiply, and divide with whole numbers.
- Add and subtract with positive and negative numbers.
- Add, subtract, multiply, and divide with fractions, decimals, and percentages.
- Determine and perform necessary arithmetic operations to solve a practical mathematics problem (e.g., determine the total invoice cost for ordered

- supplies by multiplying quantity by unit price, summing all items).
- Solve simple algebraic problems (e.g., equations with one unknown).
- Determine whether enough information is given to solve a problem; identify the facts given in a problem.
- Recognize alternative mathematical methods of solving a problem.

NUMERICAL & GRAPHIC RELATIONSHIPS

- Recognize relationships in numerical data (e.g., compute a percentage change from one year to the next).
- Recognize the position of numbers in relation to each other (e.g., $1/3$ is between $1/4$ and $1/2$; $-7 < -4$).
- Use the relations less than, greater than, or equal to, and their associated symbols to express a numerical relationship.
- Identify numbers, formulas, and mathematical expressions that are mathematically equivalent (e.g., $2/4 = 1/2$, $1/4 = 25\%$).
- Understand and use rounding rules when solving problems.
- Understand and apply the meaning of logical connectives (e.g., and, or, if-then) and quantifiers (e.g., some, all, none).
- Identify or specify a missing entry from a table of data (e.g., subtotal).
- Use numerical information contained in tables, spreadsheets, and various kinds of graphs (e.g., bar, line, circle) to solve mathematics problems.

TEST SPECIFICATIONS: WRITING

The Writing Test is a one-hour test consisting of two essay questions. One of the essay questions asks examinees to write about a remembered experience. The other question is designed to elicit expository prose that will permit writers to demonstrate their analytic skills.

ABILITIES SPECIFICATIONS

The questions in the Writing Test will elicit a writing sample that will show the examinee's ability to:

1. write with clarity (i.e., the reader can comprehend immediately what is meant),
2. keep the writing focused (i.e., the reader is kept on the track),
3. develop the ideas in the writing through support or illustration,
4. use the conventions of standard written English, and
5. maintain a line of thought essentially free of non sequiturs, internal contradictions, unwarranted conclusions, and confusion of fact and opinion.

TOPIC SPECIFICATIONS

Topics should be of the following two types:

TYPE I (one question per examination):

Topics should elicit a sample of expressive writing about a remembered experience (expressive aim).

TYPE II (one question per examination):

Topics should elicit a sample of expository writing that will permit the examinees to demonstrate their analytic skills (referential aim).

Topics should NOT: ask examinees to write personal letters or notes, though letters to the editor are acceptable, or ask examinees to write out of imaginary or speculative experiences.

ATTACHMENT B

EXAMINATION DEVELOPMENT PROCESS OVERVIEW

1. **Define and validate content.** For each subject area, a separate content advisory group of experts made up of California educators from both the public schools and institutions of higher education is appointed by the Commission to work with the Commission's external examinations contractor. This panel assists in developing the content specifications on which the examination will be based, using the K-12 student academic content standards and frameworks as a reference and starting point. A separate panel of California educators comprises a Bias Review Committee that examines materials to ensure that they are free from bias. After the content specifications have been drafted, an extensive field review of the content specifications is conducted throughout the state in order to ensure that the content aligns with the K-12 student academic content standards and frameworks, and that the content is also relevant to the job of an entry-level teacher of that discipline.
2. **Define and validate test questions.** Once the content specifications have been revised based on the field review and are subsequently approved by the Commission, examination questions are developed. Each question must track back to one or more of the specific content specifications. The draft questions are reviewed by the Commission's standing Bias Review Committee to ensure that the questions are free from any source of potential bias, and then are also reviewed by the content advisory panel. The advisory panel also recommends the subtest structure and the relative weighting of the various sections of the examination. The contractor uses this information to develop one or more forms of the examination.
3. **Set Passing Scores.** The examination is then ready for its first administration. Following the initial administration of the examination, a new panel of content experts is used to set a recommended passing score which is then considered for adoption by the Commission. Once the passing score standard has been adopted by the Commission, candidates who took the first administration are notified of their scores and the examination is then available for future administration.

The entire process described above typically takes a minimum of one year to complete.